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ABSTRACT

This abstract/bibliography is part of an information service provided by the Council, and offers a classified selection of recent U.S. and foreign articles and books in the area of population. Categories in this issue are: 1) demography and social science; 2) human reproduction and fertility control; 3) family planning programs; 4) population policy; and, 5) general. Items selected are considered worthy of attention by administrators and scholars in the population/family planning field. Subject to availability, individual articles (not books) listed will be sent on request to administrators and scholars in Africa, Asia, and Latin America. (JLB)

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Current Publications in Population/Family Planning

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Number 11

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Demography and Social Science

Coale, Ansley J. "Man and His Environment." ***Science,*** **170 (3954): 132–136. 9 October 1970. 11-1**

Environmental deterioration has arisen largely because of failure to impose a cost for the adverse effects of industrial activities. Specifically, we have treated pure air, water, and waste disposal as if they were free, or in economic terms, as if they were externalities; an externality being a consequence (good or bad) that does not enter into the gain or loss calculation of an economic activity. Corrective measures include those that would make externalities internal. The reason that the future nonrenewable resource situation seems bleak is that we can plausibly project the demand on the basis of increasing recent trends but cannot so plausibly foresee additional or substitute sources of supply. Another aspect of the resource situation (that the U.S., for example, is using far more than its proportionate share of the earth's resources) fails to take into account that the developing countries need the receipts from the export of their raw materials in order to purchase the capital equipment necessary for their economic development.

A lower rate of population growth would ease the strain on resources and retard environmental deterioration, but if we continue to treat pure air and water and trash disposal as if they were free we will be in trouble whether or not population grows. We need policies now to arrest the careless destruction of our world and to reduce unwanted births. In the long run we also need policies to influence the number of wanted births.

Handler, Philip (ed.). ***Biology and the Future of Man.*** **Oxford University Press, 1970. 939 pp. 11-2**

Reports of 21 panels consisting of a total of 185 authorities in particular disciplines, sponsored by the National Academy of Sciences. Each panel reviewed the present state of knowledge and the major questions facing researchers in various fields. Beginning with the origins of life and concluding with the role of biology in the future of man, chapters include "The Materials of Life and Their Transformation," "The Biology of Development," "Biologic Structures," "The Nervous System," "The Biology of Behavior, Heredity and Evolution," "The Diversity of Life," "What is Ecology?" and "Biology and Industrial Technology." The final chapter, "Biology and the Future of Man," treats excessive population growth. Numerous charts, line drawings, and photographs accompany the text.

Leridon, Henri, Elisabeth Zucker, and Maité Cazenave. "Fécondité et Famille en Martinique." ***Travaux et Documents de l'Institut National d'Etudes Démographiques.*** **Cahier No. 56, P.U.F., 1970. 186 pp. 11-3**

Analysis of the data collected in a survey of 1,532 women aged 15 to 54 in January 1969 in Martinique covering socioeconomic characteristics, nuptiality, fertility, opinions and attitudes toward family, knowledge and practice of contraception, and need for information about contraceptive methods.

The major findings include: For the last ten years, a fertility decline, at first slow, now accelerating, has been observed. This change occurred mainly in women over 30 years of age. Use of contraception is reported principally by women of this age group, but the desire to have information about contraceptive methods is widespread among all age groups. The ideal number of children is between three and four while the actual number of children born to women of 1929–1933 cohorts will reach 5.4, or one and a half times the desired number.

Nuptiality patterns include several types of union beside legal marriage: 40 percent of the women over 35 have already had at least two unions, and 25 percent of the women marrying already have had a union with another man before their marriage. These patterns are changing, but the consequences for fertility are difficult to foresee: marriage is not a crucial fact in the life of a fertile woman in Martinique, but the stabilization of a union into marriage increases the period of exposure to the risk of conception. This is illustrated by the fact that married women have an average of 6 children, while women having at least one union, without marriage, have an average of 4.6 children.

Sauvy, Alfred. ***General Theory of Population.*** **Basic Books, Inc., 1969. 551 pp. 11-4**

Originally published in 1966 as *Théorie Générale de la Population.* A study of the relationship between the demographic-biological characteristics of society and economic and social circumstances. A general theory of population is derived from empirical research, and is presented in two parts, "The Economics of Growth" and "The Life of Populations." Chapters on the economics of growth treat animal ecology, optimum population, agricultural societies, productivity and employment, industrial societies, and migration. In the section on the life of populations, chapters discuss history, demographic aging, prevention of births, the Malthusian spirit, the family, geographic distribution of man, the Marxist point of view, and population policy. The text is supplemented by many figures and tables, with a seven-page index appended.

Schnore, Leo F. "Demography and Human Ecology: Some Apparent Trends." ***The Annals of the American Academy of Political and Social Science,*** **390: 120–128. July 1970. 11-5**

A review of recent activities—publications, studies, textual materials, and research—in demography and ecology in the United States. The article treats demography and human ecology separately and does not attempt to deal with areas of integration of activities.

Taylor, Carl E. "Population Trends in an Indian Village." ***Scientific American,*** **223 (1): 106–114. July 1970. 11-6**

A Rural Health Research Project, set up by Johns Hopkins University, is in operation in the Punjab. Three studies are currently in progress: a functional analysis of rural health centers, an investigation of the interactions of malnutrition and common infections in children during weaning, and a prospective study of the impact of health care for mothers and children on the acceptance of family planning. A research staff of 70 is at work in 22 villages, observing a population of 25,000. The birth rate has started to decline. One important factor is undoubtedly the dramatic economic improvement in the Punjab in the past 15 years. Rapid changes in agriculture have brought about a greater readiness to modify other patterns of life and work. Villagers are beginning to view change as a good thing. A slow demographic transition provides time for spontaneous recognition over one or two generations of the increased survival rate among children. The family planning study is investigating experimentally whether improved care for children will encourage parents to practice family planning when they have only one or two children rather than waiting until they have at least four. The acceptability of family planning as a routine part of postpartum care for women is also being tested. It is in the village subcenters that the most constructive steps can be taken to solve India's population problem, but more than 200,000 new subcenters are needed soon.

Wharton, Clifton R. (ed.). *Subsistence Agriculture and Economic Development.* Aldine Publishing Company, 1969. 481 pp. 11-7

A technical examination of subsistence agriculture, containing original chapters by 40 social scientists. The 14 chapters are grouped under five major headings: "The Subsistence Farmer, Agrarian Cultures, and Peasant Societies"; "The Economic Behavior of Subsistence Farmers"; "Theories of Change and Growth"; "Developing Subsistence Agriculture"; and "Research Priorities on Subsistence Agriculture." A 13-page index is appended.

Human Reproduction and Fertility Control

Djerassi, Carl. "Birth Control After 1984." *Science*, 169 (3949): 941–951. September 1970. 11-8

Any future birth control agent will almost certainly be the product of the technologically advanced countries, generated in the laboratories of their pharmaceutical companies under scrutiny of governmental regulatory bodies. As such, development of these products will be a long and increasingly costly process. Products that would facilitate the use of governmental "externally imposed extensions of voluntary fertility control" are totally unfeasible by 1984.

Critical path maps and an analysis of time and cost data related to the development of new luteolytic or abortifacient agents and male antifertility agents indicate that increasing costs are a real factor in the decreasing number of new products being marketed in the United States. "Development during the next decade of practical new methods of birth control without important incentives for continued active participation by the pharmaceutical industry is highly unlikely. If none are developed, birth control in 1984 will not differ significantly from that of today."

Hall, Robert E. (ed.). *Abortion in a Changing World*, Volume II. Columbia University Press, 1970. 220 pp. 11-9

The second of a two-volume report (see **8-34** for abstract of Volume I) on the proceedings of an international conference on abortion convened by the Association for the Study of Abortion at Hot Springs, Virginia, in November 1968. Contains an edited report of the ten separate panel sessions devoted to abortion and animation, poverty, public health, psychiatry, obstetrics, morality, mortality, constitutionality, progeny, and womankind. Conference participants and observers are listed at the end.

Hammes, Laurel M. and Alan E. Treloar. "Gestational Interval from Vital Records." *American Journal of Public Health*, 60 (8): 1496–1505. August 1970. 11-10

The time lapse between onset of the last preceding menstrual period (LMP) of the mother and date of a birth is the only commonly available measure related to the gestation period. Designated as the gestational interval, this measure of length of prenatal life is widely useful, provided that errors of recollection of LMP do not intrude as a disturbing factor.

The gestational interval scale might well be based on simple subtraction of dates, and this scale classified into weeks in accord with the nearest unit principle to avoid problems of bias correction. Now that the Standard Certificate of Live Birth calls for the LMP date entry, this becomes an important step forward toward greater precision and consistent measurement practice.

Lednicer, Daniel (ed.). *The Chemical Control of Fertility.* Dekker Co., December 1969. 269 pp. 11-11

A collection of articles by leading scientists with American pharmaceutical companies, and others, gathering together present information on the reproductive cycle in the female, the biology and chemistry of steroidal and nonsteroidal contraceptives, and assays and screens in antifertility research.

Mann, T. "The Science of Reproduction." *Nature*, 224 (5219): 649–654. 15 November 1969. 11-12

The vastly increased output of publications on reproductive biology in man and vertebrates indicates the impressive growth of the science. Areas presently showing great advances are control of fertility, induction of ovulation, and embryo transfer. Research work is increasing on the biochemistry of spermatogenesis and oögenesis, and the mechanism of egg/sperm interactions; on "organizational" and "activational" effects of steroids on intracellular processes; and on pheromones (sex attractants) which are being studied in both insects and higher mammals.

Sağiroğlu, Nuri and Emel Sağiroğlu. "Biologic Mode of Action of the Lippes Loop in Intrauterine Contraception." *American Journal of Obstetrics and Gynecology*, 106 (4): 506–515. 15 February 1970. 11-13

Although intrauterine devices have been used for years as a method of birth control, their mechanism of action has remained obscure in spite of continued research. Studies have shown that they probably do not act by blocking ovulation, changing tubal physiology, obstructing sperm, or preventing fertilization or ovum transport. Endometrial tissues and enzymes as well as hormonal assays are essentially unchanged in women wearing these devices.

This study was carried out on 37 women after a Lippes loop had been *in situ* from 24 hours to 36 months. Urethral, vaginal, ecto- and endo-cervical smears were taken before the device was removed; they showed patterns consistent with the patient's menstrual cycle. Smears taken from the device itself after removal showed increased numbers of macrophages, fibroblasts, fibrin, and fluid exudates. Macrophages are highly phagocytic, produce a lytic enzyme, and apparently obstruct the entry of sperm into the endometrial cavity. The finding of millions of these cells covering the endometrium suggests that they attack the blastocyst and prevent its implantation, and thus are responsible for the effectiveness of the device.

Tejuja, Sabita. "Use of Subcutaneous Silastic Capsules for Long-Term Steroid Contraception." *American Journal of Obstetrics and Gynecology*, 107 (6): 954–957. 15 July 1970. 11-14

"Silastic capsules containing 25 mg. megestrol acetate (MA) were subcutaneously implanted in 22 women. One capsule each was initially implanted in 15 women, and 9 pregnancies were recorded within six months of exposure. In the group of 16 women with 2 implants, 5 pregnancies occurred. There were no pregnancies with 3 or 4 implants. Menstrual pattern and histologic examination of the endometrium indicated that ovulation was not inhibited by 3 or fewer implants. Endometrial pattern was irregular with 4 implants. There were no local or systemic side effects attributable to the implants. It is suggested that further trials with 3 or 4 implants would help elucidate the dose and acceptability of this simple method for long-term conception control." (Author's summary.)

Whitelaw, M. J., C. F. Kalman, and L. R. Grams. "The Significance of the High Ovulation Rate Versus the Low Pregnancy Rate with Clomid." *American Journal of Obstetrics and Gynecology*, 107 (6): 865–877. 15 July 1970. 11-15

"In 203 married anovulatory private infertility patients treated with Clomid, 191 could have been expected to ovulate. Fifty-one failed to respond. Of the 140 who did respond, 79 (56.4 percent) conceived with 88 pregnancies resulting in 67 live births. Ten took place between the fifth and tenth months of Clomid therapy. Eight conceptions would ordinarily not have been recognized as they aborted between the second day of menses and the fourth week after nidation. The basal body temperature cannot be relied upon as an indication of ovulation, as all patients with a thermogenic shift of less than 10 days had a proliferative endometrium, while a minimum of 15 percent with a rise of 12 to 18 days likewise showed a similar endometrium. The cervical factor was responsible for infertility in six patients. It is postulated that the majority of the remaining patients responding to Clomid did not conceive due to an abnormal tubal transport mechanism based on a neuroendocrine disturbance." (Authors' summary.)

Family Planning Programs

Arnold, Charles B. (ed.). *Medical Students and Population Research*, Monograph 4, Carolina Population Center, 1969. 112 pp. 11-16

As part of the attempts of medical school faculty to learn techniques of reflecting in curriculum the new role of the physician with respect to family planning, seven medical students report their research on social problems associated with human fertility: (1) a process for scoring the professional-to-patient "respect dimension" in family planning clinics; (2) the relationship between psychological perspectives of the patient and continuance in family planning programs, as a measure for predicting those most likely to discontinue; (3) a study of an apparent tendency for a smaller degree of participation in family planning programs by some one group in a low-income, ethnically-mixed population; (4) factors of family size preferences of young, middle-class women; (5) sexual attitudes and behavior patterns of a group of urban, adolescent, Negro females; (6) development and evaluation of a sex education filmstrip for teenagers; and (7) review and commentary on literature of in-

duced abortion. Bibliographies on medical education and family planning are appended.

Blake, Robert R., Deborah W. Stirling, and Suzanne R. Wolfe (eds.). *Family Planning Educational Materials: An Annotated Bibliography of Selected Items.* Monograph 6, second edition, Carolina Population Center, September 1969. 148 pp. 11-17

A classified list of public education media used in family planning education, with complete descriptions and sources. Two general sections, "Materials for the General Public" and "Training Materials," plus an Appendix with alphabetical address list of sources are included.
General Public materials are classified under three subsections: Reasons for Family Planning, Methods of Family Planning, and Family Life Education. English and non-English materials are listed separately, and all materials are grouped according to media: Booklets-Brochures, Films, Fliers-Folders, Posters, and Miscellaneous. (For an annotation of the first edition of this monograph, see **1-23**.)

Bogue, Donald (ed.). *Family Planning Improvement Through Evaluation.* University of Chicago Community and Family Study Center, 1970. 82 pp. 11-18

First in a series of "Family Planning Research and Evaluation Manuals" prepared for use by family planning organizations and social researchers. Provides a general introduction to the field, "takes inventory of the problems, suggests courses of evaluative action, and describes the viewpoint and organization that may be most profitably followed." Chapters are written in outline form with major headings, statements, and terms underlined for emphasis and clarity. Samples of worksheets are included.

Jaffe, Frederick S., Joy G. Dryfoos, and Raymond Lerner. "Planning for Community-Wide Family Planning Services." *American Journal of Public Health*, 59 (8): 1339–1354. August 1969. 11-19

Demographic studies indicate that at least one-fifth of American couples report "excess fertility," and that most expect to use some form of fertility control. The higher socio-economic groups, with greater access to private medical care, tend to control fertility more reliably; with 14 percent of their births unwanted, as compared with 40 percent among the poor and near-poor. This disparity can be reduced by providing adequate publicly-funded family planning programs among the poor, with the secondary objectives of reducing infant mortality and illegal abortion—thereby improving the health and quality of life for these people. Minimum service includes physician care, contraceptive supplies, instruction in basic reproductive physiology, activities which facilitate attendance at clinics (such as transportation and case-finding outreach), and referral.
Programs must be conveniently located and without financial barriers, demonstrate respect for the individual, be available at convenient times, and include follow-up procedures. Responsibility for delivery of services must be shared among the health agencies and with the private physician, and wherever possible be integrated into a comprehensive health program.
Planned Parenthood-World Population has developed a methodology for planning which includes steps for compiling data with respect to need and available resources, both present and potential; for ordering priorities for action; and for locating the responsibility for both functional coordination of services by multiple agencies and the creation of mechanism for centralized policy-making, fiscal accountability, evaluation, and forward planning. Planning must include delineation of manpower problems, patients' attitudes, relative capabilities and interests of different agencies, and power relationships within the health establishment and the community.
PPWP's approach was tested in a large Standard Metropolitan Statistical Area (SMSA) and a profile of needs, services, resources, and priorities was developed. (Charts and tables in the article describe the process more fully.) The necessary distinction was illuminated between central coordinating functions and service functions, and alternative structures for the assumption of these responsibilities were considered. The success of this analysis, as well as other experience, led PPWP to establish the Center for Family Planning Program Development as its technical assistance division, to assist communities in such planning. Administrative, planning, and publications units of this center will help public and private agencies to develop preliminary epidemiological-type studies and community-wide programs; to analyze federal, state, and local policies affecting programs and funding; and to exchange information and experience among professionals and family planning workers.
Three new studies will be undertaken by PPWP in the next year: summary data for an overview of the current family planning situation in each U. S. county; analysis of the situation and prospects in 20 large SMSAs; and analyses in selected rural areas.

Ross, John A. "Service Statistics for Family Planning Programs." To appear in *Family Planning and Fertility Control*, John Ross and John Friesen (eds.), McGraw-Hill, forthcoming. 11-20

This paper, originally presented at the Ford Foundation Evaluation Conference, Marino, Italy, April 1970, outlines specific procedures for (1) quick and efficient provision of information about family planning program activities for use by administrators, and (2) a system of record-keeping at the local level that enables field workers and clinic personnel to serve better their family planning clientele. A monthly reporting form is illustrated and reasons presented for the importance of each set of items on the form, e.g., performance, supply, personnel, and activity. An individual acceptor form used in Morocco since 1969 is offered as a good example of a method which can provide not only information on acceptors for central processing but also a local permanent record for more efficient follow-up care. A management record book for use by field workers is suggested. Cost data, however, are to be kept only at the central level.
Monthly summary reports for program administrators are important. They should present data by geographic region and by national totals in time-trend series to enable the administrator to evaluate current activities.
Use of evaluation reports is new in many health ministries, leading to natural anxieties, but is potentially valuable to all parties concerned. The goal with service statistics, as with all evaluation, is to provide clear and useful information which will help the program directors know what is happening and why and how it can be improved, thereby to administer more effectively the programs for which they are responsible.

Wishik, Samuel M. "The Use of Client Characteristics as Predictors of Utilization of Family Planning Service." *American Journal of Public Health*, 60 (8): 1391–1397. August 1970. 11-21

With respect to family planning services, several discrete but interrelated questions exist concerning the differential motivations and characteristics of service acceptors and nonacceptors and of continuers and non-continuers among women who practice contraception. It is important to select groups carefully when a study is being made, so that no distortion of fact results from excluding a group and thereby weighting the results.

Population Policy

Bloomgarden, Henry S. and Stephen P. Strickland (eds.). *Population Crisis.* Socio-Dynamics Publications, 1970. 481 pp. 11-22

A condensation of the 32 hearings on population conducted from 1965 to 1968 in the United States Senate by the Government Operations Committee's Subcommittee on Foreign Aid Expenditures under the chairmanship of former Senator Ernest Gruening, who has written the introduction to this volume. Testimony is included from United States presidents, congressmen, foreign heads of state, demographers, sociologists, clergymen, physicians, social workers, teachers, and mothers who had borne many children. To amplify the testimony, reproductions of tables, charts, and graphs are included. Twenty-seven appendices contain excerpts from relevant articles and published materials. The last appendix is a summary of key legislative actions on population and family planning from the Ninety-first Congress, January 1969 through June 1970.

Crowe, Beryl L. "The Tragedy of the Commons Revisited." *Science*, 166 (3909): 1103–1107. 28 November 1969. 11-23

While both natural scientists and social scientists recognize population, atomic war, and environmental corruption as man's most critical problems, there is little communication between the two—and this insularity has led the former to relegate these problems to the social scientists in expectation of political solutions, while the latter await technological solutions from the natural scientists. Following Garrett Hardin's explication (see Abstract **1-34**) of the ultimate deterioration of the "commons"—land set aside for the use of all—the author questions Hardin's assumptions that man's resources *can* be administered by government, given properly-weighted criteria for establishing right to utilization and mutually agreed upon forms of coercion for enforcement. The

strength for establishing such criteria and enjoining this coercion can lie only in an administrative unit of the dimension of the nation-state, and is contingent, says the author, upon acceptance of a common value system. We see today, however, that regulatory agencies to protect resources ultimately serve organized interests, rather than the expressed value systems of unorganized majorities. Government today does not have ultimate power, and value systems agreed upon by the majorities cannot be imposed upon minorities within the limits of the American concept of coercion. The current fragmentation of society into groups with diversified values and life-styles seems to indicate that sufficient motivation for lasting and equitable protection of the "commons" will be generated only in the smaller, almost "tribal" unit, within which common agreement upon a value system produces willingness to subjugate self-interest to the perceived common good.

Modern social and political institutions hinge upon singleness of purpose and specialization in decision-making; but man's evolutionary position depends upon generalized adaptability—precluded under the specialization—and it may be that a return to the tribal experience, the face-to-face life in the small community unmediated by electronic media, will prove to be a functional response in terms of perpetuation of the species.

The social scientists cannot produce viable political solutions; but science, if it will accept the responsibility for the problems, can concentrate upon the development of technological responses that both alleviate the problems *and* reward those who no longer desecrate the "commons"; and can, at the same time, through its monitoring systems, maintain a sufficient level of "disassurance" to generate public interest and support to keep the administrators focused upon the preservation of the "commons" for the general welfare.

Elliott, Robin, Lynn C. Landman, Richard Lincoln, and Theodore Tsuoroka. "U.S. Population Growth and Family Planning: A Review of the Literature." ***Family Planning Perspectives*****, 2 (4): 16 pp. October 1970. 11-24**

A supplement to the regular issue of *Perspectives*, highlighting the views of population specialists and specialists in allied fields. Agreement is widespread that population growth must at some time be brought to a halt if the quality of life is to be preserved. Disagreement concerns when this should take place and what the specific role of U.S. population growth is in exacerbating environmental deterioration, urban crowding, ecological imbalances, and depletion of natural resources. The major division among population experts at this time is over the methods to be used in achieving an eventual growth rate of zero.

Raulet, Harry M. "Family Planning and Population Control in Developing Countries." ***Demography*****, 7 (2): 211–234. May 1970. 11-25**

". . . analysis of the major assumptions of the family planning movement and their implications for population and development policy in the less developed countries. A neo-Malthusian perspective, in which a reduction of the current high rates of population growth is considered to be a necessary condition for economic development in the less developed countries, is dominant among professionals in family planning. Population control has come to be regarded as a kind of 'leading sector' in the development process. The position taken in this paper is that the contention that fertility reduction is crucial to short term economic development is not substantiated empirically and represents a distorted view of the economic development process. Nor is there good evidence that demographic modernization can move far ahead of other aspects of modernization. Skepticism about the success of family planning tends to lead to advocacy of alternative methods of population control which are generally beyond the economic, administrative, and political capacities of the less developed countries and are sometimes repressive in tone. The family planning movement, in overstressing the independent contributions of fertility reduction programs, has tended to underplay conditions such as improved health, lowered mortality, and altered opportunity structure which make these contributions possible at all." (Author's abstract.)

General

Brown, Lester. "Human Food Production as a Process in the Biosphere." ***Scientific American*****, 223 (3): 161–170. September 1970. 11-26**

Like that of other species, man's increase in numbers is directly related to his food supply. Unlike other species, man can consciously intervene in the biosphere to produce his food. To raise the productivity of land, man has invented four basic techniques: mechanization, irrigation, fertilization, and the chemical control of weeds and insects. Each has significantly increased the earth's capacity to sustain human life, but each has perturbed the cycles of the biosphere.

Mechanization requires fuel, the expanding need for which has forced man to cut forests far in excess of their ability to renew themselves. This denuding of the natural cover of the land exposes the thin layer of life-sustaining top soil to rapid erosion by wind and water. Not only does the land become less arable, but wind erosion also increases the particulate matter in the atmosphere. This in turn is disease-producing; it could also affect the earth's climate by reducing the amount of incoming solar energy.

Irrigation, crucial in many areas and particularly for the new high-yielding seeds, produces unwanted side effects. For example, diverting rivers onto land raises the water table, which inhibits the growth of plant roots by waterlogging and renders the soil salty as water evaporates through it. Irrigation with river waters has resulted in a great increase in schistosomiasis, a debilitating disease produced by the parasitic larva of a blood fluke, which, harbored by aquatic snails, afflicts people standing in water-soaked fields. River diversion also affects global climate, and not necessarily in a favorable direction.

The great benefits from the vastly expanded use of fertilizers are not unalloyed. Fertilizer run-off, mostly of inorganic nitrates and phosphates, into rivers and lakes, stimulates the growth of algae which, depleting the water of oxygen, kills fish life. The process, called eutrophication, converts fresh water into swamps.

With regard to chemical pesticides, it is becoming increasingly clear that DDT and other chlorinated hydrocarbons threaten the existence of many animal species. Chemists are currently seeking specific-acting instead of broad-spectrum pesticides that will be degradable instead of long-lasting. Biological control of pests is another possibility.

The "green revolution" has rendered less likely any immediate threat of famine, but human nutrition on the average is still in a sorry state. Since no amount of feeding or education in later life can repair the ill-effects of early protein deprivation, current protein shortages are depreciating human resources for at least a generation. To keep even with population growth will require a doubling of present grain production by the end of the century; to meet the anticipated demand will require a tripling.

The central question is no longer "Can we produce enough food?" but "What are the environmental consequences of attempting to do so?" Whatever measures are taken, doubt is growing that the agricultural ecosystem can accommodate both the anticipated increase in population and the universal desire for an adequate diet.

Hunsaker, Herbert C., Marion Edman, Kamala Rana, M. Swaminathan, and P. G. Charadva (eds.). ***Report of a Near East/South Asia/Far East Workshop on Literacy/Population/Family Planning Education.*** **World Education, Inc., 1970. 126 pp. 11-27**

Report of a workshop held in New Delhi and Lucknow, India, 18 April to 2 May 1970, designed to discuss and plan for the use of population and family planning information in functional literacy programs throughout the developing world. Among other matters, the discussion includes the planning and content of programs, and the preparation of materials. A sample pilot proposal is appended.

Viederman, Stephen. "Population Education: A Worldwide Review of Programs in Process and Planned." The Population Council, Mimeo, 1 July 1970. 8 pp. 11-28

A preliminary compilation of information concerning the development of population education in the formal school systems, particularly at the elementary and secondary school levels. Nineteen countries are identified as having some activity in this area.

This abstract/bibliography is part of an information service provided by The Population Council. The staff of the Council considers these items to be worthy of attention by administrators and scholars in the population/family planning field. For a fuller listing of items, see particularly *Population Index*, published quarterly by the Office of Population Research, Princeton University, and *Bibliography of Reproduction*, published monthly by the Reproduction Research Information Service, Ltd., Cambridge, England.

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